

CLAIMS

*Aut A2*  
1. A method for manufacturing an organic EL device in which at least a first electrode layer, a light-emitting layer, and a second electrode layer are sequentially formed above a substrate, and the light-emitting layer is formed by supplying a liquid containing a light-emitting material to a light-emitting area above the substrate surface, the method for manufacturing the organic EL device comprising:

not forming a bank which surrounds an area above a substrate surface other than the light-emitting area;

performing a solution-repellent treatment so that a droplet of the liquid has a contact angle of  $15^{\circ}$  to  $90^{\circ}$  with respect to the substrate surface immediately before the formation of the light-emitting layer; and

supplying the liquid to a predetermined position above the substrate surface to which the solution-repellent treatment is applied.

2. A method for manufacturing an organic EL device according to Claim 1, wherein formation of the light-emitting layer is performed in a plurality of said light-emitting areas above the substrate surface by an ink-jet method.

3. A method for manufacturing an organic EL device according to Claim 1, wherein the solution-repellent treatment is a plasma treatment using a fluorocarbon gas.

4. A method for manufacturing an organic EL device according to Claim 1, wherein the solution-repellent treatment is performed by applying a fluorinated alkyl coupling agent.

5. A method for manufacturing an organic EL device according to Claim 1, further comprising performing a treatment for injecting oxygen radicals into the substrate surface immediately before the solution-repellent treatment.

6. A method for manufacturing an organic EL device according to Claim 1, further comprising forming a hole blocking layer, which allows electrons but not holes to pass

therethrough, in the light-emitting areas and therebetween above the substrate.

7. A method for manufacturing an organic EL device according to Claim 6, further comprising forming an electron blocking layer, which allows holes but not electrons to pass therethrough, in the light-emitting areas and therebetween above the substrate.

8. A method for manufacturing an organic EL device according to Claim 1, wherein the first electrode layer is an anode, the second electrode layer is a cathode, and the solution-repellent treatment is performed in the light-emitting areas and therebetween on the substrate immediately before formation of the light-emitting layer.

9. A method for manufacturing an organic EL device according to Claim 1, wherein the first electrode layer is an anode and the second electrode layer is a cathode, and further comprising forming a hole blocking layer, which allows electrons but not holes to pass therethrough, in the light-emitting areas and therebetween above the substrate after the formation of the light-emitting layers.

10. A method for manufacturing an organic EL device according to Claim 9, wherein the hole blocking layer is a metal fluoride layer comprising an alkali metal fluoride or an alkaline earth fluoride.

11. A method for manufacturing an organic EL device according to one of Claims 8 to 10, further comprising forming a hole injection/transport layer above the anodes, and performing a fluorination treatment on the hole injection/transport layer.

12. A method for manufacturing an organic EL device comprising a plurality of light-emitting areas above a substrate, the method of manufacturing the organic EL device comprising:

a step of forming first electrode layers by patterning above the substrate in the areas at which the light-emitting areas are to be formed;

a step of forming a hole injection/transport layer above the first electrode layers

and between the first electrode layers;

a step of forming a light-emitting layer above the hole injection/transport layer in the areas at which the light-emitting areas are to be formed;

a step of forming a hole blocking layer, which allows electrons but not holes to pass therethrough, in the light-emitting areas and therebetween including areas above the light-emitting layers; and

a step of forming a second electrode layer above the hole blocking layer.

13. A method for manufacturing an organic EL device according to Claim 12, further comprising forming an electron blocking layer, which allows holes but not electrons to pass therethrough, between the hole injection/transport layer and the light-emitting layer and in the light-emitting areas and therebetween.

14. A method for manufacturing an organic EL device according to Claim 12 or Claim 13, wherein formation of the light-emitting layer is performed by an ink-jet method.

15. A method for manufacturing an organic EL device according to Claim 12 or Claim 13, wherein formation of the light-emitting layer is performed by a deposition method.

16. A method for manufacturing an organic EL device according to one of Claims 12 to 15, wherein the hole blocking layer is a metal fluoride layer comprising an alkali metal fluoride or an alkaline earth fluoride.

17. An organic EL device comprising a plurality of light-emitting areas above a substrate, each having a light-emitting layer provided between a first electrode layer and a second electrode layer opposing thereto; and

a hole blocking layer, which allows electrons but not holes to pass therethrough, in the light-emitting areas and therebetween.

18. An organic EL device according to Claim 17, further comprising a layer composed of a material containing fluorine between the first electrode layer and the light-emitting

layer.

19. An organic EL device according to Claim 17 or Claim 18, wherein the first electrode layer is an anode, the second electrode layer is a cathode, the anode is provided with a hole injection/transport layer thereon, and the hole blocking layer comprises an alkali fluoride or an alkaline earth fluoride.

20. An electronic apparatus having an organic EL device, the organic EL device comprising:

a plurality of light-emitting areas above a substrate, each having a light-emitting layer provided between a first electrode layer and a second electrode layer opposing thereto; and

in the light-emitting areas and therebetween, a hole injection/transport layer and a hole blocking layer which allows electrons but not holes to pass therethrough.